

CLAIMS

We claim:

1. A layered thermal component, comprising:
 at least one thermal interface component; and
 at least one heat spreader component coupled to the thermal interface component.
2. The layered thermal component of claim 1, wherein the at least one thermal interface component comprises a crosslinkable material.
3. The layered thermal component of claim 1, wherein the at least one thermal interface component comprises at least one rubber compound and at least one thermally conductive filler.
4. The layered thermal component of claim 3, wherein the at least one thermal interface component further comprises at least one crosslinker moiety, at least one crosslinking compound or at least one crosslinking resin.
5. The layered thermal component of claim 4, wherein the at least one crosslinker moiety, the at least one crosslinking compound or the at least one crosslinking resin comprises an amine resin or an amine-based compound.
6. The layered thermal component of claim 3, wherein the at least one rubber compound comprises at least one terminal hydroxyl group.
7. The layered thermal component of one of claims 3 or 6, wherein the at least one rubber compound comprises at least one secondary, tertiary or otherwise internal hydroxyl group.
8. The layered thermal component of claim 1, wherein the at least one thermal interface component comprises at least one solder material.
9. The layered thermal component of claim 8, wherein the at least one solder material comprises a paste.
10. The layered thermal component of claim 8, wherein the at least one solder material comprises at least one of the following: indium, copper, silver, aluminum, gallium, tin or bismuth.

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11. The layered thermal component of claim 8, wherein the at least one thermal interface component further comprises at least one resin component.
12. The layered thermal component of claim 11, wherein the at least one resin component comprises a silicone compound.
- 5 13. The layered thermal component of claim 12, wherein the silicone compound comprises a vinyl Q resin or a vinyl silicone.
14. The layered thermal component of claim 11, wherein the at least one solder material comprises at least one of the following: indium, tin, silver, bismuth or aluminum.
15. The layered thermal component of claim 11, further comprising a crosslinking
0 additive.
16. The layered thermal component of claim 15, wherein the crosslinking additive comprises a siloxane compound.
17. The layered thermal component of claim 16, wherein the siloxane compound comprises a hydride functional siloxane compound.
- 5 18. The layered thermal component of claim 1, wherein the at least one heat spreader component comprises at least one metal or metal-based base material.
19. The layered thermal component of claim 18, wherein the at least one metal or metal-based base material comprises nickel, aluminum or copper.
20. The layered thermal component of claim 19, wherein the at least one metal or metal-
0 based base material comprises AlSiC.
21. The layered thermal component of claim 1, wherein the at least one heat spreader component has a thickness of about 0.25 mm to about 6 mm.
22. The layered thermal component of claim 21, wherein the at least one heat spreader component has a thickness of about 1 mm to about 5 mm.
- 5 23. A method of forming a layered thermal component, comprising:
providing at least one thermal interface component;
providing at least one heat spreader component; and

coupling the at least one thermal interface component to the at least one heat spreader component.

24. The method of claim 23, wherein the at least one thermal interface component comprises a crosslinkable material.

5 25. The method of claim 23, wherein the at least one thermal interface component comprises at least one rubber compound and at least one thermally conductive filler.

26. The method of claim 25, wherein the at least one thermal interface component further comprises at least one crosslinker moiety, at least one crosslinking compound or at least one crosslinking resin.

0 27. The method of claim 26, wherein the at least one crosslinker moiety, the at least one crosslinking compound or the at least one crosslinking resin comprises an amine resin or an amine-based compound.

28. The method of claim 25, wherein the at least one rubber compound comprises at least one terminal hydroxyl group.

5 29. The method of one of claims 25 or 28, wherein the at least one rubber compound comprises at least one secondary, tertiary or otherwise internal hydroxyl group.

30. The method of claim 23, wherein the at least one thermal interface component comprises at least one solder material.

31. The method of claim 30, wherein the at least one solder material comprises a paste.

0 32. The method of claim 30, wherein the at least one solder material comprises at least one of the following: indium, copper, silver, aluminum, gallium, tin or bismuth.

33. The method of claim 30, wherein the at least one thermal interface component further comprises at least one resin component.

34. The method of claim 33, wherein the at least one resin component comprises a
5 silicone compound.

35. The method of claim 34, wherein the silicone compound comprises a vinyl Q resin or a vinyl silicone.

36. The method of claim 33, wherein the at least one solder material comprises at least one of the following: indium, tin, silver, bismuth or aluminum.

37. The method of claim 33, further comprising a crosslinking additive.
38. The method of claim 37, wherein the crosslinking additive comprises a siloxane compound.
39. The method of claim 38, wherein the siloxane compound comprises a hydride functional siloxane compound.
- 5 40. The method of claim 23, wherein the at least one heat spreader component comprises at least one metal or metal-based base material.
41. The method of claim 40, wherein the at least one metal or metal-based base material comprises nickel, aluminum or copper.
- 0 42. The method of claim 41, wherein the at least one metal or metal-based base material comprises AlSiC.
43. The method of claim 23, wherein the at least one heat spreader component has a thickness of about 0.25 mm to about 6 mm.
44. The method of claim 43, wherein the at least one heat spreader component has a thickness of about 1 mm to about 5 mm.
- 5 45. An electronic component comprising the layered thermal component of claim 1.
46. A semiconductor component comprising the layered thermal component of claim 1.
47. An electronic component comprising the layered thermal component of claim 23.
48. A semiconductor component comprising the layered thermal component of claim 23.
- 0 49. A method for forming the thermal interface component of claim 1 or claim 23, comprising:
 providing at least one saturated rubber compound;
 providing at least one amine resin;
 crosslinking the at least one saturated rubber compound and the at least one amine
 5 resin to form a crosslinked rubber-resin mixture;
 adding at least one thermally conductive filler to the crosslinked rubber-resin mixture;
 and
 adding a wetting agent to the crosslinked rubber-resin mixture.

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50. The method of claim 49, further comprising adding at least one phase change material to the thermal interface material.